



State of Illinois

ENVIRONMENTAL PROTECTION AGENCY

Mary A. Gade, Director

2200 Churchill Road, Springfield, IL 62794-9276

August 16, 1996

Judy Beck
USEPA, T-17J
77 West Jackson Blvd.
Chicago, IL 60604-3590

EPA Region 5 Records Ctr.



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Dear Ms. Beck:

Enclosed are several documents concerning the U.S. Steel Southworks site, that is participating in the IL EPA Site Remediation Program (our voluntary cleanup program). Ken Westlake suggested that I send these to you for distribution to reviewers.

IL EPA is specifically asking USEPA to review and comment on our draft titled IEPA Response Summary for Comments of Center for Neighborhood Technology, Chicago Legal Clinic, Lake Michigan Federation, and Southeast Chicago Environmental Task Force, in the matter of the Environmental Assessment and Proposed Cleanup Objectives.

Information enclosed includes:

The environmental groups comments and IEPA draft response to those comments.

The Human Health Risk Assessment for the Southworks Site. If there are questions, Tom Hornshaw with our Office of Chemical Safety was our reviewer and on our project management team. Tom can be reached at 217/785-0830.

USX Southworks north and south vessel slip sediment related documents from IL EPA files.

Very general groundwater information and surface water sample results. Much more groundwater information is available if the reviewers need it, please have them call me. The IEPA draft response cited above explains where IL EPA is on this issue.

Four fact sheets that are available for public information.

Ken Westlake suggested September 6, 1996, as a target date for completion of the review and comment period. Please let me know if there are problems with this date. Thank you for your assistance. If anyone needs more information or has questions, my direct phone number is 708/338-7891.

Vickie Moy
Project Manager
Remedial Project Management Section

Comments of

**Center for Neighborhood Technology
Chicago Legal Clinic
Lake Michigan Federation
Southeast Chicago Environmental Task Force**

in the matter of

**Environmental Assessment and Proposed Cleanup Objectives
USX South Works Brownfield Site**

before the

Illinois Environmental Protection Agency

April 11, 1996

Below are the comments of the Center for Neighborhood Technology, Chicago Legal Clinic, Lake Michigan Federation and Southeast Chicago Environmental Task Force concerning the environmental assessment activities and proposed cleanup objectives for the USX South Works brownfield site.

The following is a summary of our major findings:

- USX did not perform a serious evaluation of groundwater remedial alternatives for the South Works site.
- No remediation objectives were established for several groundwater contaminants based upon unproven "natural attenuation" processes that assume water from Lake Michigan will dilute contaminant levels and cleanse the site.
- Allowing contaminants from the site to leach into Lake Michigan and be a permanent source of pollution is contrary to water quality initiatives that are seeking to reduce all toxic inputs into the Great Lakes to protect human health and aquatic life.
- Illinois EPA exceeded its statutory authority by allowing USX to avoid establishing a groundwater management zone at the site in favor of a untested risk-based remediation scheme.
- US EPA's soil screening tool was improperly used to eliminate several soil contaminants from consideration in the health risk study.

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- The health risk study not only failed to consider the impact of all contaminants detected at the site, but it also did not evaluate ecological threats to terrestrial and aquatic organisms.
- USX should have acknowledged the existence of other significant toxic exposure pathways in the area, such as air inhalation.
- The nature of the risks posed by soil, groundwater and sediment contamination were not adequately defined due to gaps and inconsistencies in environmental sampling and testing efforts at the site.
- No toxicity testing was conducted to determine ecosystem effects from contaminated soil, water and sediments.

Given the serious flaws in both USX's environmental assessment activities and the proposed remedial objectives for the South Works brownfield site, we believe the company has failed to demonstrate that contamination at the site will be cleaned up to levels protective of public health and the environment. We therefore urge Illinois EPA not to approve the site cleanup plan until USX:

- more thoroughly characterizes the environmental problems at the site; and
- develops more comprehensive cleanup objectives.

We would like to point out that many of the technical issues we have raised could have been addressed much earlier in the site remediation process. Unfortunately, USX and Illinois EPA chose not to make site information available and consult with interested community groups and environmentalists until environmental investigation and health risk studies were almost completed.

1. Groundwater Contamination

Initially, both USX and Illinois EPA (IEPA) contemplated using the processes and substantive standards appropriate to a Groundwater Management Zone, including the establishment of alternative groundwater standards. To this end, USX submitted a GMZ application on November 13, 1995.

The IEPA is now considering using its purported authority under 415 ILCS 5/58.5 to establish "risk-based remediation objectives". According to IEPA, these risk based remediation objectives would not require the establishment of a Groundwater Management Zone at the site, nor the accompanying requirement of a status review and written report every five years until the appropriate Class II groundwater standards were met.

USX requested "risk-based remediation" at the site in order to justify antimony, iron,

chloride, sulfate and pH levels which exceed the Class II groundwater standards. However, in this context, the term remediation is misleading. USX is making no substantive proposal to perform groundwater remediation. Rather, USX is simply listing the highest levels at which these constituents are found at the site and, in turn, proposing these levels become the "remediation objectives". It would be more accurate to characterize these objectives as the "no remediation objectives".

The proposal to abandon the GMZ process is in keeping with the "no groundwater remediation" option. Under a GMZ, the goal is remediation of the groundwater to the level of the standards applicable to that class of groundwater. In The Matter Of: Groundwater Quality Standards (35 Ill. Adm. Code 620), Illinois Pollution Control Board, R89-149(B), November 7, 1991, at 14. Under a GMZ, it is entirely reasonable to expect USX to engage in remedial activities which are calculated to attain the groundwater standards appropriate for Class II groundwater. If these activities cannot return the groundwater to Class II standards, there is a procedure for establishing alternative groundwater standards.

To date, USX has identified two possible remedial responses to groundwater contamination at the site. The first - removal of the slag fill - is so impractical to suggest USX is not sincerely attempting to identify and evaluate groundwater remedial options at the site. Nonetheless, this impractical proposal reflects a truthful assessment about the source of groundwater contamination at the site. The source of groundwater contamination is dissolving slag. The USX site is built on slag fill. The slag dissolves when it comes into contact with groundwater. Because of the lakefront location of the property, nothing prevents contaminants released by the dissolution of slag from entering Lake Michigan.

Slag composition is complex and variable, but is generally a calcium-silicon-aluminum-magnesium (Ca-Si-Al-Mg) oxide with lesser amounts of sulfur (S), iron (Fe), manganese (Mn), sodium (Na), and potassium (K) and minor amounts of heavy metals. The oxides are a necessary byproduct of the Bessemer process, in which all of the unwanted waste is basically burned (oxidized) off. The elements are sequestered in a variety of minerals, the most common of which are melilite, dicalcium silicate, rankinite, merwinite, etc.. Iron and sulfur are present in both oxidized and reduced forms. All of the silicate minerals (i.e. with Si) favored dissolution in models of the groundwater chemistry of the region, according to Roadcap and Kelly's regional groundwater study. As recognized by USX, slag dissolution may also contribute to very high pH levels found at the site. Simply, absent some meaningful remedial strategy, slag dissolution may be a permanent source of releases into Lake Michigan.

In addition to the clearly impractical solution - removing slag fill - USX has also proposed a "natural attenuation" alternative to address groundwater contamination. Under this alternative, recommended in their GMZ application, the sloshing back and forth of Lake Michigan water through the adjacent fill material will eventually remove the contaminants. Like slag removal, this alternative also reveals something very important about the site. Lake Michigan water and site groundwater are in direct communication.

USX attempts to use this proximity as an advantage - the Lake will eventually cleanse the site by transporting away all dissolvable contaminants. In essence, the volume of contamination will be dwarfed by the enormous dilution power of the Lake. Of course, the most significant advantage for the applicant is unstated. This service is provided at no cost to USX, the responsible party.

Under a GMZ, there is a clearly established process (created through a painstaking, negotiated rulemaking before the Illinois Pollution Control Board) which provides a basis to question "natural attenuation". First, under a GMZ, there is a requirement for ongoing monitoring at the site, to determine if the assumptions about a proposal like "natural attenuation" are correct. Under the "risk based remediation" now proposed, there would be no future monitoring at the site. The slag fill has been present at this site since the before the turn of the century, and has not yet been "naturally attenuated". Only empirical data acquired through long term monitoring could possibly establish the effectiveness or ineffectiveness of such a proposal.

Second, the GMZ process affords an opportunity to consider other remedial alternatives. That is, under a GMZ, the applicant bears the burden of demonstrating that an appropriate corrective action has been undertaken. In the present case, there has been neither groundwater-specific corrective action taken by the applicant, nor a serious proposal evaluating potential groundwater-specific corrective actions.

Third, the GMZ has the advantage of being a legally recognized process of characterizing and addressing groundwater contamination. There is reason to question whether the IEPA possesses any legal basis for using risk-based remediation as now proposed. That is, in addition to being ill-advised, the IEPA's proposed use of risk-based remediation may also exceed its statutory authority. The IEPA is relying on 415 ILCS 5/58.5 (d)(4). However, 5/58.5(f) states:

Until such time as the Board adopts remediation objectives under this Section, the remediation objectives adopted by the Board under Title XVI [Underground Storage Tanks] of this Act shall apply to all environmental assessments and soil or groundwater remedial action conducted under this Title.

The Board has adopted no remedial objections under this Title.

The IEPA is proposing to abandon an established, clear and cogent process for establishing a groundwater management zone in favor of an untested risk based remediation scheme which it may not have statutory authority to apply. It is proposing to use this new scheme at a remarkably complex site adjacent to Lake Michigan. Under this untested scheme, the IEPA is considering a "no remediation" option even though five contaminants at the site do not attain Class II standards, and without any meaningful analysis of the full range of potential remedial alternatives. The IEPA is considering this "no remediation"

option even though the site will be a permanent source of these contaminants into Lake Michigan, without requiring any future monitoring. The IEPA is considering choosing an alternative which will require no expense of the private party which is solely responsible for the site, which profited from almost a century of operating at the site, and which will profit again from the land's value upon sale.

2. Health Risk Study

The evaluation of health risks posed by contamination at the South Works site involved a number of steps. USX identified the historical uses of the site and produced maps showing the locations of known manufacturing, storage and waste areas. These areas were sampled for contaminants and preliminary clean-up activities were recommended. The IEPA reviewed the data collected and determined that further sampling should be conducted to assess the overall contamination present at the site.

After additional soil samples were collected and analyzed, the concentrations of various contaminants at each sampling location were compared to standard default concentrations for the contaminants, called Risk Based Concentrations (RBCs). These soil screening levels were developed by the US Environmental Protection Agency's (US EPA) Region III office. Site contaminants which were found in concentrations exceeding the RBC levels were identified as "chemicals of interest" by USX and incorporated into a study which evaluated health risks from exposure to contamination at the site.

Several contaminants found at the site were eliminated, or "screened out" from further consideration in the health risk study because they were present in concentrations that did not exceed the RBC levels. These included barium, arsenic and cadmium.

We believe the RBC tables were improperly used to set "no-action" levels for these contaminants. According to US EPA, the RBCs "should not be viewed as a substitute for a site-specific risk assessment."

US EPA Region III believes the RBCs "would probably be protective as no-action or cleanup goals" for certain kinds of contaminated sites, but only under the following circumstances:

- 1) A single medium is contaminated.
- 2) A single contaminant contributes nearly all of the health risk.
- 3) Volatilization or leaching of that contaminant from the soil is expected not to be significant.
- 4) The exposure scenarios used in the RBC table are appropriate for the site.

5) The fixed risk levels used in the RBC table are appropriate for the site.

6) Risk to ecological receptors is expected not to be significant.

Memo dated March 7, 1995, Roy Smith, Senior Toxicologist, Technical Support Section, US EPA Region II to RBC Table Mailing List.

The first, second, and most likely the sixth assumptions were not met at the USX South Works site. This calls into question the validity of USX's decision to eliminate certain contaminants after comparing the site soil concentrations to the RBC concentrations. We believe the health risks posed by contamination at the site should have been based on the cumulative effects of all contaminants for which an exposure pathway potentially exists.

The first assumption, that a single medium is contaminated, was not met because contamination was found in the soil, the sediments, and in the ground water. Additionally, although not from the site itself, the ambient air in the area contains significant concentrations of toxic contaminants. (See study by John Summerhays, "Evaluation of Risk from Urban Air Pollutants in the Southeast Chicago Area," J. Air Waste Manage. Assoc. 41:844-850, 1991, in which the average cancer risk from the ambient air across the entire Southeast Chicago Area study was estimated to be 2.0×10^{-4} , based on the evaluation of 30 carcinogens and their estimated annual emission levels.)

The second assumption, that a single contaminant contributes nearly all of the health risk, was not met since many contaminants were identified at the site and the ambient air contains many of these contaminants as well.

The sixth assumption -- no significant risk to ecological receptors -- may have been violated given the levels of contaminants found in the groundwater and sediment samples. No attempt was made to evaluate the impact of sediment contamination on terrestrial and aquatic organisms, either through direct contact or consumption of lower (benthic) aquatic species. In addition, no evaluation was conducted to determine the impact of animal and plant species ingesting or growing in site soils and sediments.

Once the soil screening process was completed, the contaminants that were found in concentrations above the RBCs were then compared to background levels of contamination. It was assumed that contaminants found in concentrations below background levels would not have to be remediated unless an immanent threat to human health or the environment existed. The existence of PAHs and other chemicals make this step of removing contaminants based on background levels inappropriate for the protection of human health because of the possible synergistic effects of all the chemicals present at the site.

Given the constraints of using the RBC values as a screening tool for complex contaminated sites like South Works, more contaminants should have been included in the

health risk assessment to allow for a better estimate of human and ecological impacts. The health risk study should have considered all of the detected contaminants regardless of their initial concentrations. The additive health risks posed by all the contaminants at the site should have also been evaluated regardless of the size of the individual risk calculated for each chemical. Finally, ecological impacts should have been considered.

In its health risk study, USX indicated that the RGs for cancer-causing "contaminants of interest" were calculated based upon a cancer risk range of 10-5 to 10-6. It should be noted that 415 ILCS 5/58.5(d) specifies that remediation objectives for residential use, which is the projected land use scenario for the South Works site, must be based on 10-6 risk level.

Finally, studies indicate that people living in Southeast Chicago are being exposed to potentially-dangerous levels of toxic air pollutants. We believe the health risk study for the South Works site should have acknowledged the existence of other significant exposure pathways not directly related to site contamination so that policymakers and local residents can more effectively determine the nature and extent of environmental hazards in the area and the best approaches for dealing with them.

3. Environmental Sampling and Analysis

To determine the health and environmental risks posed by contamination at the South Works site, USX collected and analyzed contaminants from soil and sediments samples. We believe the environmental sampling and analysis procedures contained a number of significant gaps and inconsistencies. In addition, they did not address the potential hazards of some of the most harmful contaminants that may be contained in soil and sediments in and around the site. Without adequate sampling and analyses, the proposed remedial actions cannot be appropriately evaluated.

For example, contaminant concentration levels in samples obtained in Phase I and II of the environmental site assessment fluctuated widely, depending on the site sampled and the type of sample obtained (i.e. soil, groundwater, sediment). In order to validate these concentrations, further testing should have been done on samples obtained from the same sampling sites in all three phases. Instead, USX analyzed many samples for various contaminants (ranging from a few to a set of compounds) that could not be compared or validated between phases of the assessment because samples were collected in different areas of the USX site.

Another problem with the environmental assessment work involved the sediment sampling. Sediments were analyzed in all three phases of the assessment. Samples in Phases I and II were taken from manholes connected to major process water sewers and subsurface pits under the property or surface impoundments bordering the property. Sediments collected for analysis in Phase III of the assessment were only taken from the two vessel slips (North and South) on the edge of the property, directly connected to Lake

Michigan. No other sediment samples were obtained for analysis in Phase III.

Sediment samples were collected at ranges of 0-2 feet and 7-9 feet in both vessel slips. Additional samples should have been collected and analyzed at a range of 2-7 feet to provide a complete picture of the contamination levels.

Relatively high levels of cadmium, chromium, and lead were found in some samples of sediment collected over the period July 1992 to January 1993 during the Phase I portion of the assessment. However, no sediment samples analyzed for metals in Phase II of the assessment were obtained from sites corresponding to the sites sampled in Phase I, so elevated metals concentrations could not be confirmed.

Total petroleum hydrocarbons (TPHs) were analyzed in sediments sampled in Phase I. TPHs concentrations greater than 1000 mg/kg were obtained in 10 of these sediment samples. Although a number of sediment samples were obtained in Phase II of the assessment, only three of the Phase II samples were obtained from sites approximately corresponding to Phase I sites where high concentrations of TPHs were found. Sediment was not collected from any of these sites in Phase II of the assessment. Instead, only five sediment samples were obtained from vessel slips that had not previously been analyzed in Phase I or Phase II.

The full range of potential hazards associated with sediments were not addressed. Vessel slip sediments sampled in Phase III of the assessment were neither tested for total TPHs or semi-volatile organic compounds (SVOCs). Many of these compounds, such as benzo(a)phrene, a SVOC, are extremely carcinogenic and have a tendency to accumulate in sediments and in biota that are intimately associated with sediments (e.g. worms, insect larvae, bottom-feeding fish). Concentrations of contaminants such as these are expected to be high in areas of industrial outfalls, moorings, and harbors. Vessel slip sediments would be included in this category. Therefore, to adequately assess the potential hazard of the vessel slip sediments, TPHs and SVOCs should have been analyzed.

TPHs were also found in varying concentrations in soil boring samples and surfacial soil samples taken in Phase I and Phase II. However, only one soil sample was taken at approximately the same area in Phase I and Phase II. The conclusions in the Waste Technology, Inc. reports are in direct opposition to the presentation in the USX Fact Sheet dated 12/14/95 which states:

"In Phase I, a total of 60 soil samples were collected and chemically analyzed. Low levels of total cyanide were found in 33 soil samples. TPHs were found in 42 soil samples; later resampling at these locations resulted in much lower TPH levels, presumably because of natural breakdown of these substances in soils near the ground surface. Similar levels of chemicals were found in sediments, except the level of TPHs were considerably lower."

Such speculation concerning the fate of a contaminant or group of contaminants based on a single sample cannot be validated scientifically. More sampling of soils and sediments from the same collection of sites should have been undertaken before conclusions were made concerning the level of metals, TPHs and other contaminants at the South Works site. This is especially important in cases where widely fluctuating contaminant concentrations were found.

Finally, all the sampling done at the USX site appears to have been concerned only with gathering materials and finding contaminant concentrations in these materials. No toxicity or biological assays (bioassays) were done on the collected samples. Such testing should be done to determine ecosystem effects from contaminated soil, water and sediments.

4. Lake Michigan Water Quality

As mentioned earlier, USX is proposing "no groundwater remediation" option even though groundwater under the site fails to attain Class II standards for 10 constituents of concern -- beryllium, cadmium, manganese, chloride, phenols, sulfate, pH, iron, antimony, lead. USX's assumption that natural attenuation, in combination with the completed above-ground remedial activities in hotspot areas, will "eventually clean up the aquifer" relies on diluting these contaminants in Lake Michigan.

This process of flushing out the constituents of concern underlying the site entails continued pollution of Lake Michigan, with no estimate of the length of time for "natural attenuation" to clean up groundwater flowing into the lake.

We believe that "dilution is not the solution to pollution." The concept that Lake Michigan, as well as every water body, have assimilative capacity for pollutants without harm to the ecosystem is no longer an accepted hypothesis, and the presence of environmental pollutants in the Great Lakes basin is a significant concern.

Since the 1980's, evidence has mounted that some chemicals do not break down into harmless components. Instead, they remain toxic for years and years. Their effects are long-term and often very subtle. This is a particular problem for the Great Lakes which are huge reservoirs due to limited outflow. The remarkably diverse ecosystem of the lakes is now being threatened by the introduction and presence of pollutants from runoff, discharges and precipitation.

The scientific community and policy makers, such as the International Joint Commission, concerned with the health of the Great Lakes, have concluded that the only guaranteed way to reverse water (and air) degradation is to stop putting anything in the Great Lakes that is harmful. This means abandoning the old theory of estimating how much is acceptable and replacing it with a new basin-wide theory that any amount is too much.

Antimony, beryllium, cadmium, iron, lead and phenol have been identified by US EPA as chemicals which are toxic enough to warrant new, stricter water quality criteria in order to protect human health and aquatic life in ambient water under the Great Lakes Initiative Guidance. Illinois is required to adopt these new water quality criteria by September 23, 1996. IEPA is also participating in the process of developing a Lakewide Management Plan for Lake Michigan in cooperation with US EPA that addresses the broader issues of nonpoint and atmospheric inputs to the lake and establishes both goals and priorities for further improvement.

To indiscriminately permit the continued leaching of toxic contaminants from the South Works site into Lake Michigan is contrary to these water quality initiatives. We believe Lake Michigan should be protected by having more stringent water quality cleanup objectives established for the site.

Date: March 8, 1996

To: Kevin Greene

From: Julia M. Simmons

Re: **Review of the USX South Works Phase I, II, and III Site Assessments and the Human Health Risk Assessment**

Introduction.

The Phase I and II site assessments identified the historical uses of the site and produced maps showing the locations of known manufacturing, storage and waste areas. These areas were sampled for contaminants and recommendations for preliminary clean-up activities were issued by the site assessors. The Illinois Environmental Protection Agency (IEPA) reviewed the data collected and determined sampling should be done according to a statistically produced grid to assess the overall contamination present at the site. The Phase III assessment sampling data was used to generate Remediation Goals (RGs) or clean-up levels that would be protective of human health. These goals were established for contaminants found in the soil and the sediments of ship canals located on the site. The methodology establishing the RGs and the final levels of contaminants allowed to remain on site in the surface soil will be examined to answer the question, Will the site be "safe" for residential human use?

Methodology of Establishing Remediation Goals.

After soil samples were collected and analyzed by methods approved by IEPA, the concentrations of various contaminants at each sampling site were compared to standard default concentrations for the contaminants, called Risk Based Concentrations (RBC). These standard concentrations are deemed protective of human health by the United States Environmental Protection Agency (USEPA) for the parameters used to derive the concentrations. The parameters used are conservative values and probably overestimate the safety to human health provided for by the calculated soil concentrations. Based upon these comparisons of concentrations, certain contaminants were eliminated, or "screened out", from further consideration in the calculation of RGs and the human health risk assessment. However, as stated in the RBC tables used, the RBC should only be used when the following assumptions are true:

- 1) A single medium is contaminated
- 2) A single contaminant contributes nearly all of the health risk
- 3) Volatilization or leaching of that contaminant from the soil is expected not to be significant
- 4) The exposure scenarios used in the RBC table are appropriate for the site
- 5) The fixed risk levels used in the RBC table are appropriate for the site
- 6) Risk to ecological receptors is expected not to be significant.

The first, second, and most likely the sixth, assumptions were not met at the USX site. Each of these violations of the underlying assumptions in the use of the RBC tables has negative implications as to the validity of the decision to eliminate certain contaminants after comparing the site soil concentrations to the RBC concentrations. Health risk is determined on the cumulative effects of contaminants from all media for which an exposure pathway exists.

The first assumption, that a single medium is contaminated, was not met because contamination was found in the soil, the sediments, and in the ground water. Additionally, although not from the site itself, the ambient air at the site contains significant concentrations of contaminants. From the study by John Summerhays, "Evaluation of Risk from Urban Air Pollutants in the Southeast Chicago Area," J. Air Waste Manage. Assoc. 41:844-850(1991), in which the average cancer risk from the ambient air across the entire Southeast Chicago Area study was estimated to be 2.0×10^{-4} , a list of 30 carcinogens and their estimated emissions per year were presented. Of these 30 chemicals present in the air, the following six are also in the soils at USX South Works Site: 1) Arsenic, 2) Benzene, 3) Beryllium, 4) Cadmium, 5) Chromium, and 6) Methylene chloride. In another study by Clyde W. Sweet and Stephen J. Vermette, "Toxic Volatile Organic Compounds in Urban Air in Illinois," Environ. Sci. Technol. 26:165-173(1992), a list of 11 monitored toxic VOCs in the Southeast Chicago ambient air are presented. Of these 11 chemicals, the following 5 chemicals are in the soils at the USX site: 1) Benzene, 2) Toluene, 3) Xylenes, 4) Ethylbenzene and, 5) 1,1,1-Trichloroethane. Since residents of the area are exposed to contaminated air, the values in the RBC tables may not be protective of human health and should be adjusted downward in determining which soil contaminants can be safely "screened out" of the remediation goals or the human health risk assessment.

The second assumption, that a single contaminant contributes nearly all of the health risk, was not met since many contaminants were found at the site, the ambient air contains many contaminants, and the foods people eat contain some contaminants. Some of these contaminants may have synergistic effects when combined, therefore the RBC values may need to be adjusted downward before determining which soil contaminants can be ignored in further remediation efforts.

The sixth assumption, risk to ecological receptors is expected not to be significant, may have been violated given the levels of contaminants found in the sediment samples. I understand that this issue is being addressed by a Chicago State University professor.

It should be noted that the RBC values used in the initial assessments may not be the only RBC values published; screening levels published by other EPA regional offices sometimes contain RBC values derived by states within their region which are significantly different from the values used by the EPA. If more conservative values are available, an explanation from IEPA on the choice of RBC values to use would help the public evaluate the final clean-up plans.

Once the screening process was completed, the contaminants that were found in concentrations above the RBC were then compared to background levels of contamination. This comparison was done to be consistent with USEPA guidelines for superfund sites which state cleanup levels for chemicals do not need to exceed background levels of those chemicals, unless an immanent threat to human health or the environment exists. A closer look at the background levels reveals that, for metals considered individually, the dose of the metal expected from a background level concentration will be a safe dose. Table 1 illustrates the results of substituting the background soil concentrations into the site specific formula used to determine dose and comparing the result to the published allowable doses found in the Region III RBC tables. Even if the dose to a background chemical is an acceptable dose, the additional site information indicating the presence of PAH's and other chemicals may make this step of removing contaminants based on a background level inappropriate for the protection of human health, again due to the possible synergistic effects of all the chemicals present. In the following evaluation of the USX South Works Site Human Health Risk Assessment, the effect of not eliminating chemicals from the risk

assessment due to background concentrations will be explored for the residential scenario for the oral ingestion of soil to the maximumly exposed individual.

The risk assessment.

Due to the constraints of using the RBC values as a screening tool to help focus the risk assessment, modifications of the RBC values may be an appropriate step to preserve the usefulness of the tables as a screening tool. One possible option is to lower the RBC values by some factor of uncertainty for each additional contaminant found at a site. By lowering the RBC values more contaminants may then be included in the formal risk assessment, which would allow for a better estimate of the additive health effects of the contaminants present. The subsequent development of remediation goals for more contaminants may lead to better protection of human health. The possibility of finding this approach used in other states' cleanup guidelines for determining chemicals of concern is still under investigation, but the move by USEPA to standardize the approach to site clean-ups will undoubtedly affect the states' approaches to clean-up.

Another suggestion would be to consider all of the contaminants regardless of their initial concentration findings when preparing the risk assessment. A review of the toxicology data available for all of the detected chemicals at the site would not require an extensive amount of time or expense for an experienced toxicologist. This data or a summary of the data to the Human Health Risk Assessment would help the public decide if due care was taken in determining which chemicals detected at the site really should be eliminated from further study in the final analysis of risk. Since synergistic effects for many mixtures of chemicals are not available, summing the risks posed by all the chemicals at the site which effect the same body systems or effect the same body organ should be done regardless of the size of the individual risk calculated for each chemical. Because I was unable to locate some additional studies which compared the results of risk assessments done for sites using the approach of evaluating all the chemicals present to an assessment of the same site using only those chemicals found above the RBC levels, information from IRIS, the Integrated Risk Information System, was collected for the chemicals detected at the site. Additional information was gather from HEAST, the Health Effects

Assessment Tables and from other on-line toxicology data bases. The chemicals and their toxicological effect are presented in Table 2. The chemicals were then grouped by the listed toxicological effect for the oral route of exposure and oral doses for each non-cancer causing chemical were estimated using the site specific formula for dose and the analytical average values of each chemical at the site as the soil concentrations. The results of the oral dose calculations are presented in Table 3. The dose results of Table 3 were further evaluated by adding the doses of grouped chemicals to produce an oral hazard index. The formula for adding doses is

$$\text{Hazard Index} = (\text{dose}_i \text{ received} / \text{acceptable dose}) + (\text{dose}_i \text{ received} / \text{acceptable dose})$$

where I is the i^{th} chemical of similar health end point.

The hazard index should equal 1 or less than 1 to be protective of human health. The results of the hazard index calculation are also presented in Table 3. With the exception of one calculated hazard index, the amounts of chemicals present at the USX South Works Site appear, from a basic review of toxicology data, to pose no health risks from the ingestion of the soil. The one hazard index which equals 2.06 is primarily due to manganese, and this chemical was addressed in the risk assessment. However, these hazard indices do not account for the dermal exposure pathway (expected to contribute very little to the hazard indices), the inhalation of contaminated ambient air or the consumption of contaminated food.

A similar procedure is used to calculate the risk from the carcinogens present at the USX South Works site. The calculations are presented in Table 4. To determine the overall cancer risk, the individual cancer risks are simply added, provided the total does not equal or exceed 0.1. If the total is 0.1 or more, then a more exact equation must be used. The exact equation is $\text{Risk}_1 + \text{Risk}_2 - (\text{Risk}_1 \times \text{Risk}_2)$. In this instance, the risk from the oral ingestion of contaminated soil is $8.67\text{E}-05$. This overall risk does not include the risk from Benzo(ghi)perylene, since a slope factor was not reported for this chemical. If the slope factor is assumed to be in the same range as for the other PAHs, the over all risk range becomes $8.67\text{E}-05$ to $9.7\text{E}-05$. The total cancer risk exceeds the upper limit for combined cancer risk of $1\text{E}-05$ that USEPA and IEPA have used in regulatory decisions. It should be noted my calculations include 12 carcinogens while the risk assessment done for USX South Works stated fewer than 10 carcinogens were present at the site. The complexity and continual updating of toxicology data may account for the difference in

number of carcinogens considered. If a chemical was reported having an oral cancer slope factor, I included it in the cancer calculations. Additionally, the bioavailability of several chemicals were not available (noted in Table 4), therefore, the overall cancer risk calculated for this report may overestimate the risk. Finally, the cancer risk calculated in Table 4 does not include the dermal exposure route (again , a minor risk contributor), the ingestion of contaminated foods and the inhalation of ambient air which contains many of these same carcinogens and contributes substantially to the cancer risk of the future population of the USX Site.

Conclusion on the question of safety for residential use of the USX South Works site.

Given the ability of analytical methods to detect numerous chemicals in minute quantities in several media, the large data sets of toxicology information, and the power of computers, it seems risk assessment covering more than a few “chemicals of concern” should be possible. Whether or not such assessments have been done or are being developed is a possible topic for EPA to communicate to the public. To my knowledge, site specific risk assessments for contaminated land do not address the hazards posed by the ambient air, only air pollution caused directly by the site is considered. It may be appropriate for EPA to incorporate the health hazards from the ambient air when deciding soil cleanup levels since the inhalation of ambient air creates a route of exposure which is unavoidable and which significantly contributes to the health hazards in the area.

In conclusion, the opportunity to clean the soil exists now, whereas the opportunities to decrease the air pollution or remove the contaminants from the food chain are more remote. Cleaning the soils to levels of contamination that ignore the contamination present in other media and the health status of those who may inhabit the site, may do little to protect the health of those people. Given the uncertainties in a risk assessment, the legislature should consider enacting policy which establishes a monetary fund from the sales proceeds of lands receiving a no further remediation letter to be used to pay unforeseen health costs arising from the future use of the land. Additionally, any future land owners should receive complete disclosure of the condition of their land, including test results showing the concentrations of contaminants on their property and any restrictions or hazards associated with future land uses, such as gardening, and digging holes to

plant large trees or new foundations for expansion of their homes. All future property owners should be granted free continuous monitoring and reporting of the condition of their groundwater, soils and air. Finally, all future land owners should be given the opportunity to participate in a health monitoring study to begin collecting data on the baseline health status of the future residents and monitor them for adverse health effects due to their residential exposure to environmental contaminants.

Is the site “safe” for residential use? The answer is a cautious yes. The cancer risk for the maximumly exposed individual from soil ingestion is so near to the $1 \text{ E } -04$ acceptable limit of EPA and IEPA, additional risk pathways, such as food consumption and ambient air inhalation, should be considered before final clean-up levels are established. Even if other pathways can not be reasonably included in the risk assessment, the overall contamination of the Southeast Chicago area should warrant the use of a more cautious acceptable risk of $1 \text{ E } - 06$ when deciding the final soil clean-up levels. Setting the risk level at $1 \text{ E } - 06$ combined with planned monitoring of health status and environmental conditions, and a financial safety net should some unforeseen hazard occur, could allow the site to be considered protective of human health.

Table 1. Comparison of oral dose for children from metal background concentrations to safe oral reference doses.

Oral dose (for children) calculations from soil background levels presented in the Phase III assessment									
Values used in calculations:									
amount of soil ingested per day for a child = 200 mg									
number of days ingestion occurs = 350 days									
number of years of ingestion = 6 years									
meteorological factor used for site = .62									
body weight of a child = 15 kg									
exposure time = 2190 days									
Therefore each background soil concentration will be multiplied by the following equation to produce a dose:									
Dose = (soil concentration x 200/10 ⁶ x 350 x 6 x .62) / 15 x 2190 or									
Dose = soil concentration x 7.926 E -06.									
Metal Name	Soil conc.(mg)	Dose	RfD oral from Region III RBC table 4-94						
Aluminum	71,000	0.562746	2.90E+00						
Arsenic	5	3.96E-05	3.00E-04						
Barium	430	0.003408	7.00E-02						
Beryllium	6	4.76E-05	5.00E-03						
Cadmium	0.06	4.76E-07	5.00E-04						
Cobalt	8	6.34E-05	1.80E-01						
Chromium	100	0.000793	1.00E+00	Chromium III	5.00E-03	Chromium VI			
Copper	30	0.000238	3.71E-02						
Mercury	0.03	2.38E-07	3.00E-04						
Magnesium	5000	0.03963	NA						
Manganese	600	0.004756	5.00E-03						
Nickel	40	0.000317	2.00E-02						
Lead	10	7.93E-05	1.00E-07						
Selenium	0.3	2.38E-06	5.00E-03						
Vanadium	100	0.000793	7.00E-03	Vanadium					
Zinc	50	0.000396	3.00E-01						
The dark shaded boxes indicate background doses to the metals are very close to the Reference Doses considered safe.									
The light shaded box indicates a background dose in excess of the Reference Dose considered safe.									
Lead is considered in the risk assessment.									

Table 2. Partial Toxicology Data from IRIS* and HEAST** for Chemicals Listed in the Phase III Site Assessment for USX South Works

Name	Health Effect from Oral Exposure	Notes
Aluminum	Increased liver and brain weight	**
Arsenic	Keratosis, hyperpigmentation, cancer	**
Barium	<i>Fetotoxicity</i> , <u>Increased blood pressure</u>	**
Beryllium	non-observed	**
Cadmium		
Cobalt		*Under review
Chromium	Stomach upsets, ulcers, convulsions, kidney and liver damage	Information from TOXFAQs ATSDR
Copper	Local GI irritation	**
Cyanide	Myelin degeneration	**
Mercury, Inorganic	Central Nervous System (CNS)	**
Mercurial	Kidney	**
Manganese	Reproductive, CNS	**
Nickel	Reduced body and organ weight	**
Antimony	Reduced life span, <u>altered blood chemistry</u>	**
Selenium	Mortality, hair and nail loss, dermatitis	**
Thallium	<u>Increased SGOT and serum LDH levels</u> , alopecia	**
Vanadium	non-observed	**
Zinc	<u>Anemia</u>	**
Acetone	Nephrotoxicity	*Under review
Benzene	Cancer	*
Carbon disulfide	<i>Fetal toxicity, malformations</i>	*Under review
1,1,1-Trichloroethane	Hepatic changes, CNS	*Under review
Acenaphthylene	Hepatotoxicity	*
Anthracene	no effect	*Under review
Benzo(a)pyrene	Cancer	Information from USX risk document

Benzo(a)anthracene	Cancer	Information from USX risk document
Benzo(b)fluoranthene	Cancer	Information from USX risk document
Benzo(ghi)perylene	Cancer	Information from USX risk document
Benzo(k)fluoranthene	Cancer	*
Carbazole	Cancer	Information from USEPA Region IX PRG Table, First half, 1995
Chrysene	Cancer	*
Dibenz(a,h)anthracene	Cancer	Information from USX risk document
Dibenzofuran	no data available	*
2,4-Dinitrophenol	Cataracts	*Under review
Fluoranthene	Nephropathy, <u>hematological alterations</u>	*Under review
Fluorene	<u>Decreased red blood cell (RBC)</u>	*
Indeno(1,2,3-cd)pyren	Cancer	*
2-Methylnaphthalene	no data	*
Phenanthrene	no data	*
Phenol	<i>Fetal weight depression</i>	*
Pyrene	Kidney effects	*
Ethylbenzene	Liver and kidney toxicity	*
Methylene chloride (Dichloromethane)	Liver toxicity, cancer	*
Toluene	Changes in liver and kidney weights	*
Xylenes	Hyperactivity, decreased body weight, increased mortality (males)	*

* Integrated Risk Information System

** Health Effects Assessment Summary Tables

Table 3. Calculation of dose for non-cancer causing chemicals found at USX South Works

Oral dose calculations from average analytical values found for non-carcinogenic chemicals in soil samples at USX South Works									
Values used in the calculations									
amount of soil ingested per day for a child = 200 mg									
number of days ingestion occurs = 350 days									
number of years of ingestion = 6 years									
meteorological factor used for site = .62									
body weight of a child = 15 kg		Bioavailability = Chemical specific value							
exposure time = 2190 days		Dilution/Attenuation Factor is not considered for non-carcinogens.							
Therefore each soil concentration will be multiplied by the following equation to produce a dose:									
Dose = (soil concentration x DAF x B x 200/10 ⁶ x 350 x 6 x .62) / 15 x 2190 or soil concentration x DAF x B x 7.926E-06.									
Chemicals grouped	Concentration (mg/kg)	ED	B	Dose	RfDo	Comments			
by toxic effect									
Aluminum	8,370	6	1	0.066341	2.90E+00				
Cynanide	6.85	6	1	5.43E-05	5.00E-03	value is for copper cyanide	ide		
Mercury	0.116	6	1	9.19E-07	3.00E-04				
Manganese	5442	6	0.235	0.010136	5.00E-03				
*1,1,1-Trichloroethane	0.01174	6	1	9.31E-08	9.00E-02	RfDo under review			
NERVOUS SYSTEM						Hazard Index =		2.064065	
Arsenic	4.6	6	1	3.65E-05	3.00E-04				
Selenium	0.3	6	1	2.38E-06	5.00E-03				
SKIN						Hazard Index =		0.122008	
Barium	119	6	1	0.000943	7.00E-02				
*Carbon Disulfide	0.00796	6	1	6.31E-08	1.00E-01				
*Phenol	0.226	6	1	1.79E-06	6.00E-01				
FETAL						Hazard Index=		0.013478	
Chromium	104.4	6	1	0.000827	1.00E+00	Chromium III	5.00E-03	Chromium VI	
Aluminum	8,370	6	1	0.066341	2.90E+00				
*Toluene	0.005	6	1	3.96E-08	2.00E-01				
*Ethylbenzene	0.00598	6	1	4.74E-08	1.00E-01				
*Methylene chloride	0.04378	6	1	3.47E-07	6.00E-02				
LIVER						Hazard Index =		0.188377	
Copper	79.1	6	1	0.000627	3.71E-02				
Chromium	104.4	6	1	0.000827	1.00E+00	Chromium III	5.00E-03	Chromium VI	
DIGESTIVE						Hazard Index =		0.017726	
Nickel	64.2	6	1	0.000509	2.00E-02				
REDUCED WEIGHT						Hazard Index =		0.025442	
Acetone***	0.0195	6	1	1.55E-07	1.00E-01				

Table 3. Calculation of dose for non-cancer causing chemicals found at USX South Works

[illegible]

Table 3. Calculation of dose for non-cancer causing chemicals found at USX South Works

NA means the needed information was not available or not found in the literature.							
*A bioavailability of one may over estimate the exposure to these chemicals, but no bioavailability data could be located.							
***Bioavailability is inferred from the literature.							

Table 4. Calculation of risk from carcinogens found at USX South Works

Dose for carcinogens found at the USX South Works											
Chemical	Concentration (mg/kg)	Half life	k	ED	DAF	***B	Dose	Slope factor***	Risk	Notes	
Benzene*	0.00583	110	0.0063	6	0.161253	1	0.000000	2.90E-02	2.16E-13		
Benzo(a)pyrene*	0.432	530	0.001308	6	0.776944	0.5	0.000001	7.30E+00	9.71E-06		
Benzo(a)anathracene*	0.415	680	0.001019	6	0.996834	0.5	1.64E-06	7.30E-01	1.2E-06		
Benzo(b)fluoranthene*	0.455	610	0.001136	6	0.894219	0.5	1.61E-06	7.30E-01	1.18E-06		
Benzo(ghi)perylene*	0.375	650	0.001066	6	0.952856	0.5	1.42E-06	NA	#VALUE!		
Benzo(k) flouranthene*	0.376	1400	0.000495	6	2.052306	0.5	3.06E-06	7.30E-02	2.23E-07		
Chrysene*	0.519	480	0.001444	6	0.703648	0.5	1.45E-06	7.30E-03	1.06E-08	16% dissappearance*	
Dibenz(a,h)anthracene*	0.239	940	0.000737	6	1.377977	0.5	1.31E-06	7.30E+00	9.53E-06		
Indeno(1,2,3-cd)pyren*	0.351	730	0.000949	6	1.070131	0.5	1.49E-06	7.30E-01	1.09E-06		
Arsenic	4.6			6		1	3.65E-05	1.75E+00	6.38E-05		
Carbazole	0.217	0.258333	2.682581	6	0.000379	1	6.51E-10	2.00E-02	1.3E-11	**	
Methylene chloride	0.0437	7	0.099	6	0.010262	1	3.55E-09	7.50E-03	2.67E-11	100% disappearance*	
									Overall risk =	8.67E-05	
*Half life values from Dragun, James, <i>The Soil Chemistry of Hazardous Materials</i> , Hazardous Materials Control Research Institute, Silver Spring, MD, 1988											
** Half life value from Hazardous Substances Data Base											
***The bioavailability for Benzene, Carbazole, and Methylene chloride could not be found so a value of one may overestimate the risk form these chemicals.											
***Slope Factor is in mg/kg-day											

EXHIBIT B

**INTERNATIONAL TRUCK AND ENGINE CORPORATION'S
RESPONSE TO JUNE 19, 2000 CERCLA SECTION 105(d) PETITION
REGARDING SLIPS ADJACENT TO THE WISCONSIN STEEL WORKS SITE**

International Truck and Engine Corporation, formerly Navistar International Transportation Corp., ("International") respectfully submits the following response to the Chicago Legal Clinic's (the "CLC") June 19, 2000 petition (the "Petition"). The Petition, submitted on behalf of ten clients (the "Petitioners") pursuant to CERCLA § 105(d) concerns the Slips adjacent to the former Wisconsin Steel Works site ("WSW Site" or the "Site").

INTRODUCTION

The Petition requested that the United States Environmental Protection Agency (the "USEPA") undertake a Preliminary Assessment ("PA") of four Slips located on the Calumet River in Chicago. Two of these Slips are adjacent to the WSW Site, held in trust by International. The USEPA initially responded to the Petition by requesting that the Illinois Environmental Protection Agency ("Illinois EPA") conduct sediment sampling. The sediment sampling was conducted on November 13-14, 2000. As a stakeholder in the outcome of the USEPA's decision, International believes that this response by the USEPA was unnecessary, that the completion of a PA is unwarranted, and that the Petition should be denied insofar as these two Slips are concerned.¹ These Slips pose no significant risk to human health, to the environment, or to the Petitioners – on these bases alone, relief should be denied. Moreover, the information relied upon by the Petitioners is incomplete, subjective, and does not support their Petition. In fact, the remedy suggested by the Petitioners – highly expensive and extensive dredging – may be counterproductive. The suggested remedy is not supported by the information relied upon by the Petitioners. Indeed, even if the Illinois EPA's current testing

¹ International is not providing comment regarding the other two Slips which are adjacent to the United States Steel South Works Site.

reveals sediment contaminant levels that in USEPA's opinion are problematic, a Feasibility Study ("FS") should be conducted to determine whether any further action is necessary. Finally, if the USEPA grants the Petitioners' request, the Petitioners ignore several potentially responsible parties who should be notified and involved in any action required by the USEPA.

APPLICABLE LEGAL AUTHORITY

CERCLA §105(d) allows any person who is, or may be affected by a release or threatened release of a hazardous substance to petition the federal government to conduct a PA of the alleged hazards to public health and the environment. 42 U.S.C. § 9605(d). Under 40 C.F.R. § 300.420(b)(5) and CERCLA §105(d), within 12 months after a PA petition is received, the USEPA must send a report to the petitioner describing whether the petition was approved or not and the reasons for the decision. When determining if a PA should be conducted the USEPA is to consider "whether there is information indicating that a release has occurred or there is a threat of a release of a hazardous substance, pollutant, or contaminant" and whether the USEPA has the legal authority under CERCLA to respond to the Site. 40 C.F.R. § 300.420(5)(iv). As a prerequisite for the USEPA to approve a PA petition, the petitioners must "provide enough information to make the person reviewing the petition suspect that an actual/potential release may exist that affects the petitioners." EPA Office of Solid Waste and Emergency Response ("OSWER"), OSWER Directive dated Feb. 5, 1990, 1990 WL 608660.

The Petition should be denied. The quality of the sediments in the Slips adjacent to the WSW Site do not affect the Petitioners, and the recommended remedy is not supported by the data or the analysis provided by the Petitioners.

FACTUAL BACKGROUND

A. The Wisconsin Steel Works Site

The WSW Site covers approximately 176 acres and is located in southeastern Chicago in Hyde Park Township, Cook County. The address of the Site is 2701 E. 106th Street, Chicago, Illinois, 60617. The Site is currently being investigated and remediated pursuant to a Consent Order with the State of Illinois dated December 30, 1996 (the "Consent Order"). There has been no manufacturing activity at the Site since 1980.

Prior to 1980 the WSW Site operated as a fully-integrated steel manufacturing facility. For 127 years, the facility was operated (at various levels of production) by numerous owners. International's predecessors owned and operated the Site for over 100 of these years. Beginning in 1981 the Site was transferred into an American National Bank Land Trust, No. 109903-07 (the "Trust"). From 1981 through 1994, the U.S. Department of Commerce Economic Development Administration (the "EDA") owned 90% of the Trust; International owned the remaining 10%. In September 1994, International entered into a settlement agreement with the EDA in which International assumed a 100% ownership interest in the Trust and agreed to enroll the Site into the Illinois Site Remediation Program (the "SRP"). International also agreed to waive its ability to withdraw from the SRP and agreed to enter into the Consent Order. See Settlement Agreement at ¶ 20. The Site is to be remediated under an industrial land-use standard. See Settlement Agreement at ¶ 20; Consent Order at ¶ 2.c. .

Pursuant to the Statement of Work ("SOW")² contained in the Consent Order, International conducted an extensive investigation of the Site. Prior to the SOW, in the 1980s and 1990s, the Site was studied by numerous entities primarily under the direction of the USACE. An addendum listing the investigative reports and documentation regarding the WSW Site is attached hereto as Exhibit A. The documents listed therein are voluminous and have not been included in this response. They are, however, available upon request.

B. North And South Barge Slips

Two of the four barge Slips complained of in the Petition are adjacent to the WSW Site. They are not, nor have ever been, owned by the Trust, or, to the best of our knowledge, by any other party with a prior ownership interest in the Site. As such, the barge Slips are not subject to the Settlement Agreement or Consent Decree.³ The Slips were, however, used by International and every prior owner during the time the Site was operated as a steel mill.⁴

As mentioned, International was not the sole user of these Slips. The South Slip, for example, was used by the predecessor of the Acme Steel Company, Interlake Iron Corporation. Aerial photographs from 1949 and 1958 show what appears to be a coal delivery

² The SOW, based on a plan prepared by the United States Army Corps of Engineers (the "USACE") in December 1993, was approved in October 1995 by the Illinois EPA.

³ The north barge slip, (sometimes referred to as the Wisconsin slip by Petitioners) is approximately 1,227 feet long by 180 feet wide and runs east-west through the middle of the site (the "North Slip"). It has sheer walls with water depths ranging from 12 to 25 feet. The south barge slip (sometimes referred to as the Semet-Solvay slip by petitioners) is approximately 964 feet long by 174 feet wide and runs east-west at the southern boundary (the "South Slip" and together with the North Slip, the "Slips"). The banks are sheer except in the immediate vicinity of the Acme Steel outfall, where the bank has slumped, creating a shallow shoreline area approximately 500 feet long. With the exception of this one shallow area, water depth ranges from 10 to 25 feet.

⁴ The Slips were primarily used for the delivery of raw materials to the Site; the North Slip was primarily used for delivery and off-loading of limestone and iron ore and the South Slip was primarily used for the delivery and off-loading of coal.

and off-loading operation south of the South Slip on the Interlake property. Sometime after 1961, Interlake ended its coal delivery and off-loading operations at the South Slip. In 1962, International acquired property southwest of the South Slip from Interlake Iron Corporation, which continued to own the property along the southern bank of the South Slip. To ensure its continued access to the South Slip, Interlake reserved the right, title, and interest to the south half of the South Slip. *See* Deed from Interlake to International Harvester Company, recorded December 21, 1962.

International does not currently use either Slip and has not done so since 1980. Indeed, the North Slip is currently inactive. The South Slip, on the other hand, is used by other companies. Acme Steel is currently discharging process water to the South Slip. Calumet River Fleeting, Inc. has been using the South Slip for barge storage for at least five years. Heckett Multiserve, a slag aggregate and distribution operation, occupies the property south of the South Slip.

ARGUMENT

A. The Slips Pose No Significant Risk to the Petitioners or the Environment

Despite never owning the Slips adjacent to the Site, despite not using them for raw materials handling in nearly twenty years, and despite the fact that the Slips are not part of the Trust property and were therefore not included within the scope of the Consent Order, International independently evaluated the Slips in December 1999. International analyzed sediment, surface water, and fish tissue data collected by the United States Fish and Wildlife Service (the "USFWS") and the Illinois EPA. *See* Ecological Risk Assessment ("ERA") completed by ARCADIS Geraghty & Miller, December, 1999, attached hereto as Exhibit B. The ERA was prepared for the community as International's response to questions surrounding slip

sediment quality. Like all other reports and documents surrounding the investigation and cleanup of the WSW Site, the ERA was placed in local information repositories for public review.⁵ The ERA concludes that the Slips adjacent to the Site do not pose a risk or imminent hazard to human health or the environment. Based on this independent evaluation, the Petition should be denied.

The ERA evaluated the risks associated with exposure to chemical constituents detected in sediment, surface water, and fish tissue. The ERA was conducted using multiple lines of evidence including media-specific criteria comparisons, evaluation of the potential toxicity of polycyclic aromatic hydrocarbon ("PAH") mixtures, correlation analyses of toxicity test results, and analysis of potential food-web exposures based on the data available from the USFWS (reported in 1994) and the Illinois EPA (reported in 1996). The assessment procedure used in the ERA is consistent with USEPA guidelines.

The ERA indicates that organic compounds are present in the sediments of the Slips at concentrations above background and regional toxicity guidance values. These concentrations, however, do not pose a significant risk or imminent hazard to aquatic receptors or piscivorous birds that utilize the Slips for habitat or foraging. Furthermore, the Petitioners' argument that they are "affected" by a release of a hazardous substance (as that word is used in CERCLA § 105(d)) is tenuous at best. The Slips are surrounded by acres of industrial property

⁵ From its inception, International's environmental project at the WSW site has been supported by a community relations plan. International maintains a mailing list of approximately 1,000 interested parties who receive newsletters and notices of key project milestones. Project information continues to be available to the broader community through project press releases, published public notices, informational distributions, and presentations made to community groups.

Throughout the process, International's interactions with the community have been open and positive. With regard to the Phase II Remedial Investigation, for example, area residents have expressed significant support for the technical process and International's community relations efforts.

and are not used in ways that would remotely encourage human recreational exposure to sediments, water, or resident biota. There is simply no viable threat to the Petitioners.

Moreover, although several metals were present in sediment taken from the Slips at concentrations above background levels and toxicity screening values, the available data and lines of evidence evaluated do not indicate that metals are likely to pose a significant risk. First, metals were not detected in the surface water samples at concentrations exceeding the chronic surface water quality criteria. Second, the toxicity observed in the fat head minnow toxicity test conducted by the USFWS can be attributed to unionized ammonia, not to the elevated levels of metals referred to in the Northwestern Study and found in the Slips' sediments. Finally, metals were not detected at elevated levels in fish tissues and the associated risks to piscivorous birds appear to be negligible. Therefore, the presence of metals does not appear to be associated with any adverse effects on aquatic or avian receptors at the Slips.

Petitioners ignore the ERA and rely instead on an assessment of the Slips by the Northwestern University Department of Civil Engineering prepared solely for the purpose of supporting the Petition.⁶ See A Characterization and Assessment of Vessel Slip Contamination: United States Steel South Works Site and Wisconsin Steel Works Site (the "Northwestern Report"). Unfortunately, the Northwestern Report introduced no new data and selectively ignored existing information, so as to support the sought-after conclusion that the Petition should be granted and the Slips dredged. Accordingly, the Northwestern Report should be disregarded.

⁶ The Northwestern Report states that the assessment was prepared in response to the Petition for a PA. However, logic suggests that the Petition should have been based on the findings of the assessment, rather than the assessment being prepared in support of the Petition. The issue of timing and motive for preparation speaks to the independence of the study. The way in which the Northwestern Report purports to bolster the Petitioners' request for dredging, both subsequent to the drafting of the Petition and without the completion of a feasibility study, is neither sensible nor objective.

First, the Northwestern Report did not consider any new data. Instead, it merely points out what it sees as the limitations of the existing data set and subsequently recommends additional ecological studies to fill in the gaps. Second, the Northwestern Report ignores much of the information available to the Petitioners at the time they filed the Petition. For example, the final version of the Preliminary Risk Assessment dated October 1998 and the Ecological Risk Assessment dated December 1999, were not referenced in the Northwestern Report or the Petition. The only International study referenced by the Petitioners and the Northwestern Report is the *Draft* Preliminary Risk Assessment dated March, 1998. The Final Preliminary Risk Assessment and the Ecological Risk Assessment addressed issues raised from public comment on the *Draft* Preliminary Risk Assessment. Many of the issues raised in the Petition were these same issues raised earlier, and were addressed in the Final Preliminary Risk Assessment and the Ecological Risk Assessment. The conclusion reached by the Northwestern Report is flawed by its failure to study all of the existing information.

The Northwestern Report also contains many technical flaws including: the improper selection of benchmarks for screening criteria; the improper use of only maximum detected concentrations and not central tendencies of the data; and the consideration of risks of chemicals that were never detected in the sediment.

The Northwestern Report is also unable to support any claim by Petitioners that they are at risk from the Slips adjacent to the Site. Indeed, even accepting the conclusion of the Northwestern Report, the only identified potential threat to humans might be fisherman or those who ingest fish caught near the Slips. Even so, the Northwestern Report specifically concludes that "the carcinogenic and noncarcinogenic risks to anglers exposed to vessel slip surface waters or contaminated fish were insignificant." See Northwestern Report, Executive Summary, p. iii.

As a result, the Northwestern Report itself supports a denial of the Petition on the grounds that there is no release or threatened release that affects the Petitioners.⁷

B. Dredging the Slips is Not Advisable and May be Counterproductive

While International has stated its position that the Slips do not pose a substantial risk to human health and the environment, should USEPA find otherwise, dredging sediments in the Slips, as recommended by the Petitioners, may not be the appropriate remedy. Prior to implementation of a remedy, the CERCLA process requires that an FS be completed; in an FS, a variety of remedial alternatives are considered. The Petitioners did not complete an FS prior to recommending dredging. International did not complete an FS because the findings of the ERA indicated that an active remedial response was not necessary.

It is our understanding that some of the undesired effects of dredging, such as disturbance of the sediment resulting in mobilization and waste management issues, need to be considered. Additionally, the improved quality of the Slips would have to be considered within the context of the Calumet River system as a whole, as sediments in the Calumet River may be deposited in the Slips following a dredging activity. Neither the Petition nor the Northwestern Report address these important issues. Additionally, the Petition and the Northwestern Report do not consider any remedial alternatives other than dredging.

While International does not believe that any type of remedy is warranted, should the USEPA find otherwise, International would expect that remedy selection consider the issues above.

⁷ International does not dispute that Chicago residents live in the proximity of the WSW Site. Such residents' exposure to the Slips, however, is extremely remote.

C. USEPA Should Notify Other Potentially Responsible Parties If It Grants The Petition.

Even if the Petition is granted (which it should not be), there are several potentially responsible parties who should be notified.⁸ These include, without limitation:

- Acme Steel – Acme Steel is a steel manufacturing facility, with its primary facilities located southwest and northeast of the South Slip. Aerial photographs indicate that Acme Steel used the south bank of the South Slip to receive and off-load coal and/or other raw materials. Acme Steel continues to discharge process water to the South Slip.
- Calumet River Fleeting, Inc. – Calumet River Fleeting, Inc. operates tug boats that move barges in the Calumet River system. Through an agreement with Heckett Multiserve, they frequently use the South Slip for temporary storage of barges.
- Heckett Multiserve – Heckett Multiserve is a slag aggregate handler occupying the property south of the South Slip. It is not known if Heckett Multiserve uses the South Slip for its commercial activity.
- The Economic Development Administration – The EDA owned 90% of the Trust from 1981 to 1997. By virtue of having property ownership while the steel making operations were in process of shut down, the EDA would be a potentially responsible party associated with any determinations relating to the Slips.

Even concerned members of the community surrounding the WSW Site recognize that International should not be held solely responsible for the Slips. At the invitation of the

⁸ International does not admit that it is a potentially responsible party. It has, however, voluntarily cooperated with the community and government agencies to understand any potential environmental issues associated with the Slips.

community, International representatives observed many Center for Neighborhood Technology ("CNT") meetings in the community regarding the Site. At one such meeting, the CNT suggested to the community the development of a petition to the USEPA regarding the Slips. The Chicago Department of Environment was requested to lead the effort, but declined. International noted that establishing a comprehensive list of potentially responsible parties was consideration that needed to be addressed. Just as important, a set of appropriate remedies needed to be determined, including a no action alternative. Repeatedly in the group discussions, the community representatives indicated that International would not be singularly targeted simply because it was present in the community and was currently investigating and remediating the Site.

The CLC, on behalf of the Petitioners, has unfairly singled out International as the sole party associated with these two Slips. By doing so, the Petitioners are distracting International from completing its work at the Site which has been International's top priority.

CONCLUSION

In short, the sampling conducted by the Illinois EPA in response to the Petition was unnecessary. Regardless, the Petition should be denied because it is unsupported by the weight of the evidence and the Petitioners are unable to demonstrate that there is an actual or potential release at the Slips which affects the Petitioners. Moreover, even if the Petition is granted, the Slips should not be dredged. Finally, there are several potentially responsible parties who must be notified if the Petition is granted and any action is required by the USEPA.

EXHIBIT A

INVESTIGATIVE REPORTS REGARDING THE WSW SITE

1. Dames & Moore, Resource Conservation and Recovery Act closure investigation report -- "Closure Plan for Wisconsin Steel Works, Chicago, Illinois," dated March 18, 1988, for the Wisconsin Steel Trust. The Closure Plan includes a proposed sampling plan for the investigation of soil and groundwater at the WSW site. The report also addressed the closure of designated hazardous waste management units.
2. Wang Engineering, Inc., sampling and analysis to support demolition activities being performed at the Site by National Wrecking Company -- draft "Report on Sampling and Analysis Program in Support of Demolition Activities, Wisconsin Steel Works Site, Chicago, Illinois," dated November 1, 1990, for the USACE.
3. USACE, Phase I Remedial Investigation -- "Site Characterization Interim Report," completed in February 1994, was conducted for the EDA under a Memorandum of Agreement signed on April 19, 1991. The Site Characterization Interim Report documented the results of a soil and groundwater investigation done at the WSW site. Over 50 soil borings were completed and 24 monitoring wells were installed. Soil and groundwater samples were analyzed for a comprehensive list of chemical compounds.
4. Administration Building Demolition Technical Memorandum -- March 1998: The report, by Geraghty & Miller for Navistar, documents the asbestos removal and building demolition of the Office Building formerly located at 106th Street and Muskegon Avenue, performed in September 1997.
5. Phase II RI Work Plan - August 1998: The Phase II RI Work Plan was prepared by Geraghty & Miller for Navistar to guide the Phase II RI activities at the WSW Site. The primary objective of the Phase II RI was to complete the characterization of the type, magnitude, extent, and migration pathways of contamination at the WSW Site.
6. Plan Acquisition and Review Technical Memorandum- September 17, 1998: This Technical Memorandum, prepared by ARCADIS Geraghty & Miller for Navistar, reported the results of the Plan Acquisition and Review activity, which consisted of reviewing plans of the former WSW and obtaining those deemed pertinent to the Phase II RI and potential remediation activities. The drawings were primarily reviewed for piping, underground storage tanks, and underground structures. This activity also provided a comprehensive background of the Site operations, investigations performed to-date, and the locations of particular facilities.
7. Preliminary Risk Assessment - October 1998: The Preliminary Risk Assessment (RA), prepared by ARCADIS Geraghty & Miller for Navistar, was prepared to focus future investigation activities to be detailed in the Phase II RI Work Plan for the former WSW Site. This document incorporated the rules of Illinois' SRP (35 Ill. Adm. Code 740) and the Tiered Approach to Corrective Action Objectives (TACO) (35 Ill. Adm. Code 742).

The Preliminary RA provided a Tier 1 evaluation of the Site data gathered and presented in the "Site Characterization Interim Report" through a comparison of constituent levels in soil and groundwater to the Preliminary RA remediation objectives. It also identified specific compounds where additional information was required, such as chromium and arsenic.

8. Chromium Sampling Technical Memorandum - October 5, 1998: This Technical Memorandum, prepared by ARCADIS Geraghty & Miller for Navistar, presented the procedures, evaluation, and conclusions regarding the concentrations of hexavalent chromium at the former WSW Site, based on the on-site chromium sampling.
9. October 1997 Groundwater Sampling Results Technical Memorandum (Groundwater Tech Memo) - October 16, 1998: This Technical Memorandum, prepared by ARCADIS Geraghty & Miller for Navistar, reported the results of the four previous groundwater sampling events and provided recommendations for a monitoring well network at the WSW Site. This comprehensive assessment of historical groundwater monitoring well sampling and hydrogeological conditions at the Site provided the basis for future groundwater investigation, risk assessment, and remedial actions with respect to groundwater.
10. Arsenic Background Sampling Results and Analysis Technical Memorandum - November 19, 1998: This Technical Memorandum, prepared by ARCADIS Geraghty & Miller for Navistar, presented an evaluation and conclusions regarding the concentrations of arsenic detected in area background sampling near the former WSW Site. In conjunction with the Arsenic Addendum, dated February 3, 1999, a preliminary screening level of 18 milligrams per kilogram (mg/kg) was agreed to as a preliminary screening level for Site activities.
11. UST Investigation Technical Memorandum- June 2, 1999: ARCADIS Geraghty & Miller on behalf of Navistar, completed a UST Investigation task at the former WSW Site. The UST field investigation was completed between September 30 and October 8, 1998. The Technical Memorandum describes the physical and geophysical investigations conducted to identify underground storage tanks at the Site.
12. Slag Characterization Results and Analysis Technical Memorandum- July 14, 1999: The data and associated evaluation presented in this technical memorandum, prepared by ARCADIS Geraghty & Miller for Navistar, concluded that the slag can be used as backfill material. Through the chemical analysis, the material in the slag pile was subjected to the same screening process as on-site soils and satisfies the applicable criteria. Based on the analytical results, the subsequent risk assessment, and common slag usage, ARCADIS Geraghty & Miller concluded that the slag may be beneficially used, without restriction, as backfill material.
13. Product Bail-Down Test Results and Analysis Technical Memorandum – December 21, 1999: This technical memorandum, prepared by ARCADIS Geraghty & Miller for Navistar, describes the procedures and results of bail-down tests performed on two areas

of free-product in the Coke Plant Area. This test was performed to provide data needed for development of the remedial action plan for free product.

14. Product Removal Alternatives Assessment and Selection Technical Memorandum– April 17, 2000: This document, prepared by ARCADIS Geraghty & Miller for International, describes the assessment and selection of remedial actions for the free product areas in the Coke Plant Area. The assessment and selection was based on effectiveness, schedule, and cost.
15. Building Demolition Technical Memorandum– June 2000: The report, prepared by ARCADIS Geraghty & Miller for International, documents the asbestos removal and building demolition of the shipping building, security building, and Mill 6 building on the main property, performed in January through May of 2000.
16. Debris Pile Characterization Results and Analysis Technical Memorandum – June 21, 2000: The Debris Pile Characterization technical memorandum, prepared by ARCADIS Geraghty & Miller for International, documented the results of the visual inspection of each of 27 debris piles at the Site, the sampling and chemical analysis of the debris piles, and an asbestos survey as it relates to the debris piles. Following a risk evaluation of the analytical results, the report categorizes each pile as requiring removal, suitable for Site use, or undetermined, pending risk assessment.
17. UST Removal Technical Memorandum – June 28, 2000: This report, prepared by ARCADIS Geraghty & Miller for International, documents the activities associated with the excavation, removal, and disposal of the remaining nine underground storage tanks located at the Site. All underground storage tanks were removed, any liquids were pumped, and the excavation was backfilled according to an approved work plan.
18. Draft Phase II Remedial Investigation Report – August 28, 2000: This report, prepared by ARCADIS Geraghty & Miller for International, documents the results of soil and groundwater investigation activities at the Site to evaluate the risk posed by contamination and to select a remedy. The soil investigation activities included over 300 soil borings and over 800 soil sample analyses of selected constituents. The remedial groundwater investigation included the installation of 23 monitoring wells and one round of groundwater sampling. The Draft Phase II RI Report describes and evaluates the results of these activities in addition to the various other investigations, within the context of historical investigations by USACE. Each successive activity performed complements and builds upon the existing body of Site data. The Draft Phase II RI Report integrates and organizes the sum of Site information into a unified, comprehensive characterization of the Site.
19. Draft Debris Pile Removal Technical Memorandum – November, 2000: This document, prepared by ARCADIS Geraghty & Miller for International, describes the removal of 11 debris piles. Four piles containing asbestos and seven piles considered unsuitable for site use were all removed. The asbestos was removed in accordance with an accepted

Asbestos Removal Work Plan (June 2000). All asbestos observed that was not associated with debris piles was also removed.

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